REMARKS/ARGUMENTS

Reexamination of the captioned application is respectfully requested.

A. SUMMARY OF THIS AMENDMENT

By the current amendment, Applicants basically:

1. Amend claims 1, 28 and 31.
2. Cancel claim 27.
3. Add new claims 35-39.
4. Respectfully traverse all prior art rejections.

B. ALLOWABLE SUBJECT MATTER

The Office Action indicates that claims 28-30 contain allowable subject matter. The indication of allowable subject matter is acknowledged with appreciation.

C. CLAIM AMENDMENTS

By this Amendment, claim 1 is amended to recite that the tray includes a plurality of engagement parts arranged along a moving direction of the tray, wherein each engagement part is one of a recess and a projection. Amended claim 1 also recites that the conveying arm contacts each of the engagement parts of the tray, individually and detachably, to move the tray from a first vacuum chamber to a second adjacent vacuum chamber. In addition, minor clarifying changes are made to claims 28 and 31.

By this Amendment, new claims 35-39 are added to the application. It is respectfully submitted that the new claims have separate patentable merit.

D. PATENTABILITY OF THE CLAIMS

1. Claims 1, 2, 7, 27 and 31-34

Claims 1, 2, 7, 27 and 31-34 are rejected under 35 U.S.C. §103(a) over Japanese Patent Publication No. 02-130849 to Toshifumi et al. ("Toshifumi"), in view of U.S. Patent No. 4,348,139 to Hassan et al. ("Hassan"), and further in view of U.S. Patent No. 5,174,881 to Iwasaki et al. ("Iwasaki"). By this Amendment, claim 27 is canceled. With respect to the remaining claims, the rejection is respectfully traversed.

The Office Action asserts that one of ordinary skill in the art would have found it obvious to combine individual selected features of the various mechanisms disclosed in the Toshifumi, Hassan and Iwasaki references to arrive at a manufacturing apparatus as recited in independent claim 1. Applicants respectfully disagree.

The Toshifumi and Hassan references both describe semiconductor manufacturing devices which include semiconductor wafer conveying portions. In both references, the conveying portions are flat planar surfaces which include air holes. A compressed gas is emitted from the air holes to float the semiconductor wafer on the top of the conveying sections.

In contrast, Iwasaki discloses a semiconductor manufacturing apparatus where a semiconductor wafer would be mounted on a tray, and the tray itself would be conveyed to different locations by a conveyor belt.

The Office Action asserts that one of ordinary skill in the art would have found it obvious to take the tray from the Iwasaki apparatus and use the tray in the conveyors disclosed in the Toshifumi and Hassan references. The Office Action asserts that one of ordinary skill in the art would have been motivated to make this combination because the combination would then allow a greater number of wafers to be transported per unit of time. This assertion is not understood.

It is respectfully submitted that using a tray in the Toshifumi and Hassan references would not increase the number of wafers which could be transported along the Toshifumi and Hassan conveyers. Regardless of whether the wafers alone are being conveyed, or whether wafers located on top of a tray are being conveyed, the movement

speed would remain the same. Accordingly, there is no reason why adding a tray to the Toshifumi or Hassan conveyer mechanisms would allow one to transport a greater number of wafers per unit of time.

It is respectfully submitted that there is no motivation for combining the references as asserted in the Office Action. Certainly the references themselves provide no such motivation. Moreover, there is no knowledge possessed by one of ordinary skill in the art that would suggest making the combination. Accordingly, it is respectfully submitted that it requires the improper use of hindsight, in view of Applicant's invention, to find any motivation for making the combination asserted in the Office Action.

For all the above reasons, it is respectfully submitted that the combination of references is improper. Withdrawal of the rejection on these grounds alone is respectfully requested.

Moreover, it is respectfully submitted that claim 1 also recites features which are not present in even the improper combination of these three references. Claim 1 recites a tray mounted on a guide plate of a semiconductor manufacturing apparatus, where the tray includes a plurality of engagement parts arranged along a moving direction of the tray, and wherein each engagement part is one of a recess and a projection. Claim 1 further recites a conveying function section having a conveying arm that contacts the engagement parts of the tray, individually and detachably, to move the tray along the guide plates from a first vacuum chamber to a second adjacent vacuum chamber.

The Hassan and Iwasaki references fail to disclose or suggest any type of tray which would be moved by a conveying arm.

The Toshifumi reference includes a driver 6 which rides along a track 8. Pins 7 are attached to the upper surface of the driver 6. Toshifumi indicates that the pins 7 could contact a side edge of a semiconductor wafer to move the wafer 1 along the top surface of the conveying face 3.

None of the references, including the Toshifumi reference, disclose or suggest a tray having a plurality of engagement parts arranged along a moving direction of the tray, wherein each engagement part is one of a recess and a projection. The references also

fail to disclose or suggest an apparatus which includes a conveying arm that contacts each of the plurality of engagement parts of the tray, individually and detachably, to move the tray from a first vacuum chamber to a second adjacent vacuum chamber. For all these reasons, it is respectfully submitted that claim 1 is allowable over even the improper combination of these references.

Claims 2, 7 and 31-34 depend from claim 1 and are allowable for at least the reasons discussed above, and for the additional features which they recite. For instance, claim 31 recites that a mechanism for moving the conveying arm is provided within only one of the first and second adjacent vacuum chambers. In the Toshifumi reference, which is the only reference that arguably includes a conveying arm, the driver 6 with its pins 7 must ride along a track 8 that extends through all of the vacuum chambers. Thus, the mechanism for moving the driver 6 is not located within only one of the vacuum chambers. It is respectfully submitted that the dependent claims are also allowable for these additional reasons.

In view of all the foregoing, withdrawal of the rejection of claims 1, 2, 7 and 31-34 is respectfully requested.

2. Claims 3-6

Claim 3 is rejected under 35 U.S.C. §103(a) over Toshifumi, in view of Hassan, and further in view of Iwasaki and US Patent Publication No. 2004/0211516 to Rigali ("Rigali"). Claims 4-6 are rejected under 35 U.S.C. §103(a) over Toshifumi, in view of Hassan, and further in view of Iwasaki and U.S. Patent Publication No. 2002/0139481 to Baxter et al. ("Baxter"). The rejections are respectfully traversed.

As noted above, the combination of the Toshifumi reference with the Hassan and Iwasaki references is improper. Withdrawal of the rejection on these grounds alone is respectfully requested.

Also, claims 3-6 depend from claim 1 and are allowable over the Toshifumi, Hassan and Iwasaki references because even the improper combination of these references fails to disclose all the features of claim 1, as discussed above. The Rigali and

Baxter references fail to cure the deficiencies of Toshifumi, Hassan and Iwasaki. Accordingly, it is respectfully submitted that claims 3-6 are allowable over all the references for the reasons discussed above in connection with claim 1.

Moreover, claims 4-6 recite additional features that are also not shown or suggested by the references of record. Claims 4-6 recite that that the manufacturing apparatus further includes a drive section for moving the conveying arm, the drive section comprising a pair of pulleys and a wire wound around the pair of pulleys. Claim 5 further recites that a tensile force adjustment mechanism is provided for maintaining the tensile force of the wire constant. Claim 6 further recites that the conveying arm is fastened at one point on the wire such that the moving distance of the conveying arm and the moving distance of the one point on the wire are the same.

The Office Action appears to assert that the Baxter reference discloses these features. However, the portion of Baxter referenced in the Office Action does not disclose a drive section that comprises a pair of pulleys with a wire wound around the pulleys. Accordingly, it is respectfully submitted that claims 4-6 are also allowable for the additional features which they recite.

For all the above reasons, withdrawal of the rejections of claims 3-6 is respectfully requested.

E. NEW CLAIMS 35-39

By this Amendment, new claims 35-39 are added to the application. It is respectfully submitted that the new claims recite features which are also not shown or suggested by the references of record.

Claim 35 is a new independent claim directed to a semiconductor manufacturing apparatus. Claim 35 recites that the conveying function section has a conveying arm that contacts the tray to move the tray from a first vacuum chamber to a second adjacent vacuum chamber. Claim 35 also recites that a range of movement of the conveying arm is smaller than a distance that the tray must travel to move from the first vacuum chamber to the second adjacent vacuum chamber. None of the references of record disclose or

suggest these features. Claims 36 and 37 depend from claim 35 and are allowable for the same reasons, and for the additional features which they recite.

Claim 38 is a new independent claim directed to a semiconductor manufacturing apparatus. Claim 38 recites that the conveying mechanism includes a conveying arm and a movement mechanism that causes the conveying arm to move. Claim 38 further recites that the movement mechanism is completely contained within one of the first and second vacuum chambers. As noted above, none of the references disclose this feature of claim 38. New claim 39 depend from claim 38.

F. CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Respectfully submitted,
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